

Facility Profile

Irving Paper
Irving Pulp and Paper Limited

Bayside, New Brunswick



Prepared by:
Approvals Branch
Environmental Management Division
Department of the Environment and Local Government
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BACKGROUND

Irving Pulp and Paper Limited operates a Mill on Bayside Drive in the City of Saint John, New Brunswick known as Irving Paper. The Mill was initially commissioned in 1964 and was called the Rothesay Paper Corporation. In 1981, the Irving Group purchased the Mill and called it Irving Paper.

The Mill utilizes the Thermal Mechanical Pulping (TMP) process to produce approximately 1000 tonnes per day of pulp from 100 % softwood. From a mixture of TMP pulp, bleached kraft pulp received primarily from the Reversing Falls Kraft Pulp Mill and clay fillers, Irving Paper produces approximately 1100 tonnes per day of paper comprised of standard newsprint, directory, and specialty grades for flyers and magazines. In 1991, the Mill underwent an expansion that resulted in Irving Paper having the largest TMP process line in North America. In 1999, the mill upgraded its TMP screening system and the No. 2 Paper Machine to produce a higher specialty grade paper.

As required under the Air Quality Regulation filed under the Clean Air Act, the Facility operated by Irving Paper is considered a source of pollution and therefore must apply for and obtain an Air Quality Approval to Operate from the Department of the Environment and Local Government. The facility is required to conduct its operations according to conditions outlined in the issued Air Quality Approval aimed at preventing unfavourable air quality conditions. The conditions are generally wide-ranging and may include such requirements as:

- limitations on operational parameters;
- requirements for testing and monitoring emissions from specific unit operations;
- requirements for testing and monitoring the ambient air quality around the facility;
- requirements to operate air pollution control equipment;
- limits on emissions that are approved to be released to the atmosphere;
- provisions for equipment upgrade or maintenance;
- requirements for environmental emergency or compliance reporting; and
- other conditions aimed at minimizing the facility's impact on the environment.

The Air Quality Regulation provides for approvals to be issued by the Minister of the Environment and Local Government for a specified period, not to exceed five years.

In October 2002, Irving Paper will assume operational responsibility of the Unit # 2 at the Courtenay Bay Thermal Generating Station (CBTGS). Currently Unit # 2, which has been supplying steam to Irving Paper since 1971, is owned and operated by the New Brunswick Power Corporation. In order for Irving Paper to assume operational responsibility of Unit # 2, an amendment to the current Air Quality Approval to Operate is required to include Unit # 2 as a source and subsequent increase in the emission limits for the Facility.

The forecasted emissions provided to the Department by Irving Paper are shown in Table 1 that follows. While there may be significant increases in the air emissions reported by Irving Paper, with the

new operational arrangement, the combined emissions from Irving Paper and CBTGS Unit # 2 will actually decrease from previous years.

Table 1: Combined Air Emission Reductions

Emission Estimates				
Courtenay Thermal Generating Station Unit # 2 and Irving Paper				
<i>Parameter</i>	<i>2000 Emissions* (tonnes/year)</i>	<i>2001 Emissions* (tonnes/year)</i>	<i>Forecasted Emissions* (tonnes/year)</i>	<i>Forecasted % Reduction</i>
Sulphur Dioxide	3000	2459	2059	31
Nitrogen Oxides	507	426	376	26
Particulate Matter	222	187	156	30
Carbon Dioxide (ktonnes)	238	226	221	7

* All based on AP-42 Emission Factors

As per the *Air Quality Regulation* filed under the *Clean Air Act* this type of amendment is required to go through a public participation process.

In addition, as it was known that Irving Paper might be seeking an alternate arrangement for their steam source, their current Air Quality Approval to Operate I-2530 was only issued in 2001 for two years, and will soon start a public participation process for its renewal. Based on this the Department has decided to combine the amendment and renewal public participation processes, as required in the *Public Participation Regulation* filed under the *Clean Air Act*. The process officially begins with the release of this document.

The Facility Profile is intended to provide background information on the Irving Paper facility, a list of potential air quality impacts associated with the facility, and a review of the facility's compliance with its current Air Quality Approval to Operate.

PROCESS DESCRIPTION

General Overview

At Irving Paper, all of the wood is trucked in as chips. In Thermal Mechanical Pulping (TMP), the process steps to produce pulp from woodchips involve chip screening to separate fines and knots, chip washing to remove debris, chip heating, refining to make pulp fibres, screening to remove longer/coarser fibres which are refined again, and bleaching. The refining uses high speed rotors with cutting edges to convert the chips to pulp fibres.

This TMP pulp is blended with bleached Kraft pulp and clay filler (a non-fibrous additive) as a wet mixture which is then formed and dried on a paper machine to produce rolls of paper. The proportions of the pulps and filler are determined by the grade of paper being produced. Generally, the higher the grade, the more kraft pulp and filler used.

Irving Paper manufactures approximately 1100 tonnes/day of standard newsprint as well as specialty grades for such papers as flyers and magazines. It manufactures the TMP pulp and purchases the kraft pulp and clay filler. Irving Paper has two Paper Machines.

At the paper machine, the pulp mixture enters a headbox where it is spread onto a fine mesh multiple wire screen that is suctioned to remove moisture. The somewhat drier pulp mixture is picked up by a felt wire which goes through a series of presses to further remove moisture and line up fibers to produce a damp paper product. The damp paper product is still on the felt wire which leads it through a series of steam drying rolls to finish the drying and forming of the paper product. To improve the smoothness and gloss, the paper passes through a supercalender. The paper product is then put on large rolls, which are cut and rewound into smaller rolls to customer's specifications. In the shipping and receiving section of the mill, the rolls are wrapped, labeled, and loaded into trucks.

The steam required for space heating and for specific unit operations at the mill is generated from the Courtenay Bay Thermal Generating Station (CBTGS), a Combustion Engineering oil-fired boiler and a Package boiler at Irving Paper. During normal operation, the CBTGS cannot meet the full steam demands for Irving Paper. Therefore, both of the steam boilers at Irving Paper operate most of the time.

Air Pollution Control

In 1996, Irving Paper voluntarily started participating in a Regional Sulphur Dioxide Response Plan initiative in an effort to reduce the ambient sulphur dioxide concentrations in the Saint John area. This plan specifies the weight percent content of sulphur in the fuel that can be burned by their boilers at certain times of the year. This ensures that their sulphur dioxide emissions are lowered which in turn results in lower ambient sulphur dioxide levels.

In late 1996, the Existing Boiler (then known as the Woodwaste Boiler) was modified such that the boiler could only fire bunker 'C' fuel oil. This resulted in a reduction of particulate matter emissions from the facility.

In 2001, the Existing Boiler was again converted, this time to burn both bunker 'C' fuel oil and natural gas, thus having the potential to significantly reduce particulate and sulphur dioxide emissions being released from this boiler when burning natural gas.

At present, both the Package Boiler and the Existing Boiler at the Facility predominately fire natural gas as their fuel source.

POTENTIAL AIR QUALITY IMPACTS

There exist potential environmental impacts to the atmosphere from the operation of the facility. The following list of potential air quality impacts have been identified and is the focus of present and future Air Quality compliance.

- Combustion gas emissions (includes sulphur dioxide, nitrogen oxides, carbon monoxide, organics, metals, and greenhouse gases) from the steam plant boilers;
- Process gas emissions (includes organics) from the operation of the Facility; and
- Odour, noise, and fugitive particulate matter emissions from the operation of the Facility.

AIR QUALITY COMPLIANCE AND ENFORCEMENT

Irving Paper is required to comply with the Air Quality Regulation – Clean Air Act and operate under terms and conditions established in its Approval to Operate, issued pursuant to Section 3 of the Air Quality Regulation – Clean Air Act. Conditions are aimed at ensuring that the facility's environmental impact during its day-to-day operations does not adversely affect air quality in surrounding areas, as well as regionally and globally. Any violation of the conditions of the Approval may be subject to compliance and enforcement measures as described in the Department of the Environment's Compliance and Enforcement Policy.

Summary of Requirements of the Approval to Operate and Compliance History

The main conditions of the Approval to Operate, I-2530 that was issued on August 16, 2001, can be summarized as follows:

- Operate the package boiler as the primary base load unit and ensure that it is fired using natural gas.

The Facility has been in full compliance with this condition.

- Operate the Facility such that annual emission caps for sulphur dioxide, particulate matter, and nitrogen oxides are not exceeded.

The Facility has been in full compliance with this condition. Sulphur Dioxide (SO₂), Particulate Matter (PM) and Nitrogen Oxide (NO_x) emissions have been below their required limits. The following shows SO₂, PM, and NO_x emissions from Irving Paper for the 2001 calendar year, as required in their current Air Quality Approval to Operate.

Year	IP Reported SO ₂	IP Reported NO _x	IP Reported PM
Caps	700 tonnes	200 tonnes	60 tonnes
2001	475	134	40

- Ensure that an opacity monitor is installed and operated in good working order in the common stack at the Steam Plant that services all the boilers at the Facility.

The Facility has been in full compliance with this condition.

- Perform source testing activities on the existing boiler if the boiler fires No. 6 fuel oil for 700 hours or more during any calendar year starting in 2002. The source testing is to measure the level of sulphur dioxide, particulate matter, and nitrogen oxides being released from the common stack at the Steam Plant, using approved methodology, and to provide a Final Report of results to the Minister.

To date the limit on the existing boiler of firing No. 6 fuel oil for 700 hours or more has not been exceeded.

- Perform a modeling study, if the existing boiler fires No. 6 fuel oil for 700 hours or more during any calendar year, starting in 2002, that illustrates the ground level concentration impacts of sulphur dioxide, particulate matter, nitrogen oxides being released from the stack at the Steam Plant, and to provide a Final Report of results to the Minister.

To date the limit on the existing boiler of firing No. 6 fuel oil for 700 hours or more has not been exceeded.

- Perform a study to confirm whether Paper Mills have the presence for trace chemicals to be released in the water vapour emitted from the mill.

The Facility has completed and submitted this report to the Department.

- Submit monthly air quality reports summarizing fuel consumption, emissions of sulphur dioxide, particulate matter, and nitrogen oxides, daily opacity levels, complaints, and any incidents during the previous month.

The Facility has been in full compliance with this condition.

- Submit an annual report on the fuel consumption, emission releases of sulphur dioxides, particulate matter, nitrogen oxides, carbon dioxide, and methane.

The Facility has completed and submitted this report to the Department.

Enforcement

Enforcement options used by the Department of the Environment and Local Government are outlined in the Department's *Compliance and Enforcement Policy*. These may include, but are not limited to: schedules of compliance, verbal and written warnings, orders, and prosecutions. Although not specifically outlined in the Policy, it is also possible to amend approvals with more stringent conditions, either during its valid period or at the time of renewal, to address specific compliance issues or to improve the environmental impact of the facility. Most recently, a new Regulation under the *Clean Air Act* allows for the issuance of "administrative penalties" for minor violations as an alternative to traditionally used enforcement options.

During the life of the current Approval, there have been no warnings or orders issued to Irving Paper, nor have there been any prosecutions initiated by this agency.

PUBLIC OUTREACH

Irving Paper indicates that its position on public outreach is to foster positive community relations by maintaining an open-door policy, whereby any member of the public or interested party wishing to obtain further information about the operation may contact Irving Paper during regular business hours. The facility may also make arrangements for tours of the facility or other community interaction.

Staff of the facility are on call 24-hours a day to respond to any complaints directed from the public. The company also makes an effort to notify the public in instances where environmental events may have an impact on nearby residents.

In addition, the Department has also requested further public outreach activities to be completed. These activities include discussing its intention to assume operation responsibility of CBTGS Unit #2 with specific environmental groups. As well, in July Irving Paper is required to put out a notice to inform the public of an Open House it will be holding in the summer of 2002.

CONTACT INFORMATION:

For information on the operation of Irving Paper Inc., please contact:

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Irving Paper

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For information on this document, or on environmental regulations relating to air quality, please contact:

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New Nouveau Brunswick

APPROVAL TO OPERATE

D-3743

Pursuant to paragraph 5 (3) (a) of the *Air Quality Regulation - Clean Air Act*, this Approval to Operate is hereby issued to:

Irving Pulp and Paper, Limited
for the operation of the
Bayside Drive Mill

Description of Source:

Commonly referred to as "Irving Paper" and sources includes: Site Access Roads, Wood Chip Storage Piles, Thermal Mechanical Pulping (TMP) Plant, Paper Machine Plant, Steam Plant, Wastewater Treatment Plant.

Source Classification:

Air Quality Regulation Class 18

Parcel Identifier:

00348029, 55114292

Mailing Address:

P.O. Box 1900
435 Bayside Drive
Saint John, NB E2L 4K9

Conditions of Approval:

See attached Schedules "A" and "B" of this Approval

Supersedes Approval:

I-2530

Valid From: January 01, 2003

Valid To: December 31, 2008

Recommended by: _____
Environmental Management Division

Issued by: _____
Minister of the Environment
and Local Government

Date: _____

SCHEDULE "A"

A. DESCRIPTION AND LOCATION OF SOURCE

Irving Pulp and Paper, Limited operates a Mill Complex on Bayside Drive in the City of Saint John, New Brunswick, commonly known as Irving Paper. The mill uses a Thermal Mechanical Pulping process and generates approximately 1000 tonnes per day of pulp from softwood furnish. The mill produces approximately 1000 tonnes per day of newsprint, directory & supercalendared specialty grades from the combination of the Thermal Mechanical Pulp, Bleached Kraft Pulp, and Kaolin Clay Filler.

There exist potential environmental impacts from the release of trace amounts of air contaminants from a variety of Mill Complex Emission Sources. The air contaminants that are or could be released from the sources in trace amounts are provided in the attached Schedule B document.

The operation of Irving Pulp and Paper, Limited Mill Complex, at the properties referenced by the PID 00348029 and 55114292 in the City of Saint John, County of Saint John, and the Province of New Brunswick is hereby approved under the *Air Quality Regulation - Clean Air Act* subject to the following:

B. DEFINITIONS

1. "Approval Holder" means Irving Pulp and Paper, Limited.
2. "Department" means the New Brunswick Department of the Environment & Local Government.
3. "Minister" means the Minister of the Department of the Environment & Local Government and includes any person designated to act on the Minister's behalf.
4. "Director" means the Director of the Approvals Branch of the Department of the Environment & Local Government and includes any person designated to act on the Director's behalf.
5. "Inspector" means an Inspector designated under the *Clean Air Act*, the *Clean Environment Act* or the *Clean Water Act*.
6. "Facility" means the property, buildings, and equipment, and all contiguous property in the title of the Approval Holder at that location.
7. "Mill Complex Emission Sources" means any stationary sources at the Facility that have a release point for air contaminants to the atmosphere. For the purposes of this Approval, the primary Mill Complex Emission Sources include: Site Access Roads, Woodchip Storage Piles, Aerated Stabilization Basin (ASB), Common Exhaust Stack (services both the Package and Existing Boilers), Courtenay Bay Generating Station Unit #2 Exhaust Stack, Chip Washing and Steaming Vents, Pulping Vents, Heat Recovery Vents, and Paper Machine Dryer Vents. The air contaminants that are or could be released from these sources in trace amounts are provided in the attached Schedule B document.

C. TERMS AND CONDITIONS

GENERAL

8. The Approval Holder shall operate the Facility in compliance with the *Air Quality Regulation 97-133* filed under the *Clean Air Act* of the Province of New Brunswick. Violation of any term and condition herein stated constitutes a violation of the *Clean Air Act*.
9. The terms and conditions of this Approval are severable. If any term or condition of this Approval is held invalid, is revoked or is modified, the remainder of the Approval shall not be affected.
10. This Facility has been classified as a Class 1B source, pursuant to the *Air Quality Regulation 97-133* filed under the *Clean Air Act*. The Approval Holder shall pay the appropriate fee on or before April 1 of each year.

11. Prior to April 01, 2008, the Approval Holder shall make application in writing for a new Approval. The application shall be made on a form provided by the Minister.
12. The Approval Holder shall notify the Minister in writing of any plans to modify the operation of the Facility that would result in a significant change in the characteristics or increased rate of discharge or concentration of any air contaminant to the atmosphere at least 240 days prior to the modification.
13. In the event of facility closure, the Approval Holder shall notify the Minister in writing at least ninety (90) days prior to the anticipated closure date.

EMERGENCY RESPONSE

14. In the event an upset condition results in an uncontrolled release and/or discharge of a contaminant to the soil, surface water, groundwater and atmospheric environments which is of such a magnitude or duration that the health or safety of the general public may be at risk, significant harm to the environment could or has resulted, or has resulted in a complaint from the public to the Facility, and any violation of this Approval, the Approval Holder shall act immediately to bring the upset condition under control and follow the Notification and Reporting Procedures outlined below.

Notification Procedure

The Approval Holder shall immediately notify the Department. The notification shall be conducted in the following order until personal contact is made with a person associated with one of the parties listed below:

by phone to the Region 4 (Saint John) Office at (506) 658-2558
by phone to Canadian Coast Guard at 1-800-565-1633

Reporting Procedure

Within 24-hours from notification, a faxed or e-mailed copy of a Preliminary Emergency Report shall be filed with the Region 4 (Saint John) Office at (506) 658-3046 and Head Office in Fredericton at (506) 457-7805 and clearly communicate as much information that is available at that time about the situation.

Within five (5) working days from notification, a faxed or e-mailed Detailed Emergency Report that describes the problem that occurred, the impact that occurred, what was done to minimize the impact, and what steps have been implemented to prevent the reoccurrence of the problem shall be filed with the Region 4 (Saint John) Office at (506) 658-3046 and the Head Office in Fredericton at (506) 457-7805.

LIMITS

15. The Approval Holder shall ensure that the emissions of Sulphur Dioxide (SO₂) from all applicable Mill Complex Emission Sources at the Facility do not exceed 2500 tonnes per year for any calendar year.
16. The Approval Holder shall ensure that, as a result of the operation of the Mill Complex alone, the Maximum Ground Level Concentration Limits provided in Schedule B of this approval are at no time exceeded at any location outside the boundaries of the Facility.
17. The Approval Holder shall ensure that fugitive particulate matter emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event fugitive particulate matter emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement a Fugitive Particulate Matter Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.
18. The Approval Holder shall ensure that odour emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event odour emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement an Odour Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.
19. The Approval Holder shall ensure that noise emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event noise emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement a Noise Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.

BOILER OPERATIONS

20. The Approval Holder shall ensure that the Package Boiler is operated using natural gas, except during periods where the natural gas supply is interrupted by the supplier.

TESTING AND MONITORING

21. The Approval Holder shall ensure that all source testing events undertaken by the Approval Holder, or on behalf of the Approval Holder, are completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing.
22. **By October 31 of each year**, the Approval Holder shall undertake a source testing event to

determine the Particulate Matter, Sulphur Dioxide, Nitrogen Oxides, and Carbon Monoxide concentrations in milligrams per cubic metre and emission rate in grams per second released to the environment from the following Mill Complex Emission Sources:

- Common Exhaust Stack (services both the Package and Existing Boilers); and
- Courtenay Bay Generating Station Unit #2 Exhaust Stack.

23. The source testing event, as required in item 22 under Terms and Conditions section of this Approval, shall be subject to the following additional requirements and exemptions:
- a. The first year the source testing event requirements are in force, the Approval Holder shall include a Particle Size Distribution (PSD) study as an additional requirement for each Mill Complex Emission Source required to be tested. The PSD study shall determine the concentration in milligrams per cubic metre and emission rate in grams per second of Particulate Matter less than or equal to 10 microns in diameter and Particulate Matter less than or equal to 2.5 microns in diameter that is being released.
 - b. In any given year, if the combination of the Package and Existing Boilers use No.6 Fuel Oil less than 700 hours, then the source testing requirement for the Common Exhaust Stack (services both the Package and Existing Boilers) will only require the determination of the Nitrogen Oxides concentration in milligrams per cubic metre and emission rate in grams per second.
 - c. In any given year, if the Courtenay Bay Generating Station Unit #2 Boiler uses No. 6 Fuel Oil less than 700 hours, then the source testing requirement for the Courtenay Bay Generating Station Unit #2 Exhaust Stack will only require the determination of the Nitrogen Oxides concentration in milligrams per cubic metre and emission rate in grams per second.
24. The Approval Holder shall ensure that the Common Exhaust Stack (service both the Package and Existing Boilers), and the Courtenay Bay Unit #2 Exhaust Stack are equipped with a continuous emission monitor. The monitor shall be capable of providing continuous readings of the opacity levels of the exhaust gas in the stack. The monitor shall be located, maintained, and operated in a manner and on a schedule that is acceptable to the Department.
25. The Approval Holder shall conduct a Mill Complex Emission Source study. The study shall provide, as a result of routine on-site activities alone, an estimate of the applicable averaging period maximum ground level concentrations (match the maximum concentration averaging period with the averaging periods in Schedule B) with frequency analysis at discrete receptor locations outside the boundaries of the Facility for each air contaminant being emitted from the Mill Complex. The sources and air contaminants to be considered in the study are those provided in the Mill Complex Emission Source definition

in this Approval, and the attached Schedule B document respectively. As a minimum the study will include:

- a. Mill Complex Emission Source Characterisation – which shall include for all identified sources a determination of: the stack and/or vent heights above adjacent ground level, the stack and/or vent diameters, the stack and/or vent gas exit velocities, the stack and/or vent gas temperatures, and the estimated or measured mass emission rate of the source air contaminants. Measured emission rates shall be used where available. Where measured emission rates are not available, the emission rates are to be estimated using recognized emission factor equations; and
 - b. Air Quality Dispersion Modeling Study – which shall use a multisource model that is acceptable to the Department and sensitive to the terrain and building downwash effects. As a minimum, the model shall include inputs of the local topography, five years of hourly meteorological data from the nearest weather station, the results of the Mill Complex Emission Source Characterisation component of the study, and discrete receptor locations within a five kilometre radius of the Facility.
26. In the event the results from the Mill Complex Emission Source study predicts air contaminant maximum ground level concentrations at locations outside the boundaries of the Facility are in the opinion of the Department to be elevated, the Approval Holder will be required to develop, submit, and implement a plan to further quantify the predicted concentrations and eliminate, reduce and/or control the air contaminants in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.

REPORTING

27. By September 30 of each year, the Approval Holder shall ensure that a Pre-test Plan pertaining to the source testing event, as required in item 22 under the Terms and Conditions section of this Approval, is completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing and filed with the Department for review.
28. By December 31 of each year, the Approval Holder shall ensure that a Final Report on the source testing as required in item 22 under the Terms and Conditions section of this Approval, is completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing and filed with the Department for review.
29. Prior to December 31, 2003, the Approval Holder shall submit to the Department the Final Report pertaining to the study required to be conducted in item 25 under the Terms and Conditions section of this Approval.
30. By the end of each month, the Approval Holder shall submit to the Approvals Branch in

Fredericton and the Region 4 (Saint John) Office, a Monthly Air Quality Report for the previous month. The report can be submitted either by e-mail, fax or mail provided that the submitted copies are signed. The report shall contain the following information:

- a. copies of any reports related to the Emergency Response section of this Approval;
- b. a summary of any operating problems related to the continuous emission monitors;
- c. a Fuel Consumption Inventory report for the Package Boiler, Existing Boiler, and the Courtenay Bay Generating Station Unit#2 Boiler. The report shall include, as a minimum, the amount of each type of fuel burned and percentage of sulphur content of each type, where applicable;
- d. an estimate of the monthly emissions of Sulphur Dioxide, Particulate Matter, Nitrogen Oxide and Carbon Monoxide in tonnes from the Common Exhaust Stack, and the Courtenay Bay Generating Station Unit#2 Exhaust Stack. The estimates are to be determined using the information in the Fuel Consumption Inventory report and the most current applicable AP-42 Emission Factor equations; and
- e. starting in 2004, this Monthly Air Quality Report shall include an estimate of the monthly emissions for all the air contaminants listed in Schedule B of this Approval in tonnes from the applicable Mill Complex Emission Sources.

Prepared by: _____

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Approvals Branch

Reviewed by: _____

Denis L. Marquis, P.Eng.
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SCHEDULE "B"

AIR CONTAMINANTS – IRVING PULP AND PAPER LTD. – BAYSIDE DRIVE MILL MAXIMUM GROUND LEVEL CONCENTRATION LIMITS

Air Contaminant	Maximum Ground Level Concentration (ug/m3)*	Limiting Effect	Mill Complex Emission Sources
*Acetaldehyde	500	Health	– Aerated Stabilization Basin (ASB)

			- Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Acetone	48000	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Antimony	25	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Arsenic	0.3	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Barium	10	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
Benzene	-	-	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Beryllium	0.01	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Cadmium	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Carbon Monoxide	15000 (8-hour average)	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack

*Chromium (di, tri, hexavalent)	1.5	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Cobalt	0.1	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Copper	50	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Ethylbenzene	1000	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Fluorides	0.86	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Formaldehyde	65	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents- Pulp Dryer Vents - Paper Machine Dryer Vents - Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Lead	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Methanol	4000	Health	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents

*Methyl Ethyl Ketone	1000	Health	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Mercury	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Molybdenum	120	Particulate	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Naphthalene	22.5	Health, Odour	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Nickel	2	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Nitrogen Oxides	200	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Particulate Matter	120	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles- Site Access Roads
Particulate Matter < 10 microns in aerodynamic diameter.	-	-	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles - Site Access Roads
Particulate Matter < 2.5	-	-	- Common Exhaust Stack (services both Package and Existing Boilers)

microns in aerodynamic diameter.			- Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles - Site Access Roads
*Selenium	10	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Sulphur dioxide	150	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Toluene	2000	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents- Pulp Dryer Vents - Paper Machine Dryer Vents - Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Vanadium	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Zinc	120	Particulate	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack

*Summary of Point of Impingement Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AACQs), Standards Development Branch, Ontario Ministry of Environment, September 2001.

+New Brunswick Air Quality Regulation filed under the Clean Air Act of New Brunswick, Schedule B and Schedule C.

++ Summary of Point of Impingement Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AACQs), Standards Development Branch, Ontario Ministry of Environment, November 1999.

**New
Nouveau** **Brunswick**

APPROVAL TO OPERATE

I-3743

Pursuant to paragraph S (3) (a) of the *Air Quality Regulation - Clean Air Act*, this Approval to Operate is hereby issued to:

**Irving Pulp and Paper, Limited
for the operation of the
Bayside Drive Mill**

Description of Source: Commonly referred to as "Irving Paper" and sources includes: Site Access Roads, Wood Chip Storage Piles, Thermal Mechanical Pulping (TMP) Plant, Paper Machine Plant, Steam Plant, Courtenay Bay Generating Station Unit #2, Wastewater Treatment Plant.

Source Classification: Air Quality Regulation Class 1A

Parcel Identifier: 00348029, 55114292, 00348045

Mailing Address: P.O. Box 1900
435 Bayside Drive
Saint John, NB E2L 4K9

Conditions of Approval: See attached Schedules "A" and "B" of this Approval

Supersedes Approval: I-2530

Valid From: January 15, 2003

Valid To: January 14, 2006

Recommended by: _____

Environmental Management Division

Issued by: _____
Minister of the Environment
and Local Government

Date: _____

SCHEDULE "A"**A. DESCRIPTION AND LOCATION OF SOURCE**

Irving Pulp and Paper, Limited operates a Mill Complex on Bayside Drive in the City of Saint John, New Brunswick, commonly known as Irving Paper. The mill uses a Thermal Mechanical Pulping process and generates approximately 1000 tonnes per day of pulp from softwood furnish. The mill produces approximately 1000 tonnes per day of newsprint, directory & supercalendared specialty grades from the combination of the Thermal Mechanical Pulp, Bleached Kraft Pulp, and Kaolin Clay Filler.

There exist potential environmental impacts from the release of trace amounts of air contaminants from a variety of Mill Complex Emission Sources. The air contaminants that are or could be released from the sources in trace amounts are provided in the attached Schedule B document.

The operation of Irving Pulp and Paper, Limited Mill Complex, at the properties referenced by the PID 00348029, 55114292, and 00338045 in the City of Saint John, County of Saint John, and the Province of New Brunswick is hereby approved under the Air Quality Regulation - Clean Air Act subject to the following:

B. DEFINITIONS

1. "Approval Holder" means Irving Pulp and Paper, Limited.
2. "Department" means the New Brunswick Department of the Environment & Local Government.
3. "Minister" means the Minister of the Department of the Environment & Local Government and includes any person designated to act on the Minister's behalf.
4. "Director" means the Director of the Approvals Branch of the Department of the Environment & Local Government and includes any person designated to act on the Director's behalf.
5. "Inspector" means an Inspector designated under the Clean Air Act, the Clean Environment Act or the Clean Water Act.

6. "Facility" means the property, buildings, and equipment, and all contiguous property in the title of the Approval Holder at that location.
7. "Mill Complex Emission Sources" means any stationary sources at the Facility that have a release point for air contaminants to the atmosphere. For the purposes of this Approval, the primary Mill Complex Emission Sources include: Site Access Roads, Woodchip Storage Piles, Aerated Stabilization Basin (ASB), Common Exhaust Stack (services both the Package and Existing Boilers), Courtenay Bay Generating Station Unit #2 Exhaust Stack, TMP Pulping Vents (that includes: Chip Washing and Steaming Vents, Pulping Vents, Heat Recovery Vents), and Paper Machine Dryer Vents. The air contaminants that are or could be released from these sources in trace amounts are provided in the attached Schedule B document.

C. TERMS AND CONDITIONS

GENERAL

8. This Approval to Operate permits the operation of the Courtenay Bay Generating Station Unit #2, and the Irving Paper Facility.
9. The Approval Holder shall operate the Facility in compliance with the *Air Quality Regulation 97-133* filed under the Clean Air Act of the Province of New Brunswick. Violation of any term and condition herein stated constitutes a violation of the Clean Air Act.
10. The terms and conditions of this Approval are severable. If any term or condition of this Approval is held invalid, is revoked or is modified, the remainder of the Approval shall not be affected.
11. This Facility has been classified as a **Class 1A** source, pursuant to the *Air Quality Regulation 97-133* filed under the *Clean Air Act*. The Approval Holder shall pay the appropriate fee **on or before April 1 of each year**.
12. **Prior to April 01, 2005**, the Approval Holder shall make application in writing for a new Approval. The application shall be made on a form provided by the Minister.
13. The Approval Holder shall notify the Minister in writing of any plans to modify the operation of the Facility that would result in a significant change in the characteristics or increased rate of discharge or concentration of any air contaminant to the atmosphere **at least 240 days prior** to the modification.
14. In the event of facility closure, the Approval Holder shall notify the Minister in writing **at least ninety (90) days prior** to the anticipated closure date.
15. The Approval Holder shall be permitted to inject up to 10 kilograms per hour of magnesium

based compounds into the Courtenay Bay Generating Station Unit #2 for the purposes of flue gas conditioning and corrosion control.

EMERGENCY RESPONSE

16. In the event an upset condition results in an uncontrolled release and/or discharge of a contaminant to the soil, surface water, groundwater and atmospheric environments which is of such a magnitude or duration that the health or safety of the general public may be at risk, significant harm to the environment could or has resulted, or has resulted in a complaint from the public to the Facility, and any violation of this Approval, the Approval Holder shall act immediately to bring the upset condition under control and follow the Notification and Reporting Procedures outlined below.

Notification Procedure

The Approval Holder shall immediately notify the Department. The notification shall be conducted in the following order until personal contact is made with a person associated with one of the parties listed below:

by phone to the Region 4 (Saint John) Office at (506) 658-2558

by phone to Canadian Coast Guard at 1-800-565-1633

Reporting Procedure

Within 24-hours from notification, a faxed or e-mailed copy of a Preliminary Emergency Report shall be filed with the Region 4 (Saint John) Office at (506) 658-3046 and Head Office in Fredericton at (506) 457-7805 and clearly communicate as much information that is available at that time about the situation.

Within five (5) working days from notification, a faxed or e-mailed Detailed Emergency Report that describes the problem that occurred, the impact that occurred, what was done to minimize the impact, and what steps have been implemented to prevent the reoccurrence of the problem shall be filed with the Region 4 (Saint John) Office at (506) 658-3046 and the Head Office in Fredericton at (506) 457-7805.

EPISODE CONTROL

17. Prior to March 31, 2003, the Approval Holder shall maintain and operate an Episode Response Plan, for the operation of the Courtenay Bay Generating Station Unit #2 and the Existing Boiler at the Irving Paper Steam Plant when firing No. 6 Fuel Oil, that has received written approval from the Minister, or a person designated to act on behalf of the Minister. A copy of the plan shall be filed with the Department.

18. Prior to receiving approval from the Minister on the Episode Response Plan, as required in item 17 under the Terms and Condition section of this Approval, the Approval Holder shall follow the current Episode Response Plans established for Courtenay Bay Generating Station Unit #2 and the Existing Boiler at the Irving Paper Steam Plant
19. During the inclusive period of May 1 to October 31 of each year, the Approval Holder shall maintain on the Courtenay Bay Generating Station site an adequate quantity of fuel oil with a sulphur content of 1.0% sulphur nominal by weight, to be used during periods when the Facility's Episode Response Plan for Courtenay Bay is enacted.

LIMITS

20. The Approval Holder shall ensure that the emissions of Sulphur Dioxide (SO₂) from all applicable Mill Complex Emission Sources at the Facility do not exceed: 2500 tonnes per year.
21. The Approval Holder shall ensure that the emissions of Nitrogen Oxides (NO_x) from all applicable Mill Complex Emission Sources at the Facility do not exceed 450 tonnes per year for any calendar year.
22. The Approval Holder shall ensure that the emissions of Particulate Matter (PM) from all applicable Mill Complex Emission Sources at the Facility do not exceed 190 tonnes per year for any calendar year.
23. The Approval Holder shall ensure that fugitive particulate matter emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event fugitive particulate matter emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement a Fugitive Particulate Matter Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.
24. The Approval Holder shall ensure that odour emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event odour emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement an Odour Prevention and Control Plan in accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.
25. The Approval Holder shall ensure that noise emissions being emitted from the Facility do not cause adverse impacts to any off-site receptor. In the event noise emission impacts are suspected by the Department to be adversely impacting any off-site receptor, the Approval Holder will be required to develop, submit, and implement a Noise Prevention and Control Plan in

accordance with a timetable established by the Department. The plan shall be submitted in writing to the Department for review and approval prior to implementation.

BOILER OPERATIONS

26. The Approval Holder shall ensure that the Package Boiler is operated in a base loaded capacity at the Steam Plant using natural gas, except during periods where the natural gas supply is interrupted by the supplier outside of the control of the Approval Holder.

TESTING AND MONITORING

27. The Approval Holder shall ensure that the Facility at all times has real-time access, and initiates appropriate control based action in the Episode Response Plan to be developed, as required in item 17 under the Terms and Conditions section of this Approval, to the air quality data from an Ambient Air Quality Monitoring Network in the area of the plant consisting of at least five fixed sulphur dioxide monitors capable of continuous feedback to the control room at the Courtenay Bay Generating Station. The Approval Holder shall notify the Department immediately using the procedure outlined in the Emergency Response Section of this Approval (Preliminary Notification component only), in the event that fewer than three sulphur dioxide monitors are in operation or are not apparently reporting valid data to the Facility.
28. The Approval Holder shall ensure that all source testing events undertaken by the Approval Holder, or on behalf of the Approval Holder, are completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing.
29. By October 31 of each year, the Approval Holder shall undertake a source testing event to determine the Particulate Matter, Sulphur Dioxide, Nitrogen Oxides, and Carbon Monoxide concentrations in milligrams per cubic metre and emission rate in grams per second released to the environment from the following Mill Complex Emission Sources:
 - o Common Exhaust Stack (services both the Package and Existing Boilers); and
 - o Courtenay Bay Generating Station Unit #2 Exhaust Stack.
30. The source testing event, as required in item 29 under Terms and Conditions section of this Approval, shall be subject to the following additional requirements and exemptions:
 - a. The first year the source testing event requirements are in force, the Approval Holder shall include a Particle Size Distribution (PSD) study as an additional requirement for each Mill Complex Emission Source required to be tested. The PSD study shall determine the concentration in milligrams per cubic metre and emission rate in grams per second of Particulate Matter less than or equal to 10 microns in diameter and Particulate Matter less than or equal to 2.5 microns in diameter that is being released.

- b. In any given year, if the combination of the Package and Existing Boilers use No.6 Fuel Oil less than a total of 700 hours in a year, then the source testing requirement for the Common Exhaust Stack (services both the Package and Existing Boilers) will only require the determination of the Nitrogen Oxides concentration in milligrams per cubic metre and emission rate in grams per second.
 - c. In any given year, if the Courtenay Bay Generating Station Unit #2 Boiler uses No. 6 Fuel Oil less than a total of 700 hours in a year, then the source testing requirement for the Courtenay Bay Generating Station Unit #2 Exhaust Stack will only require the determination of the Nitrogen Oxides concentration in milligrams per cubic metre and emission rate in grams per second.
31. The Approval Holder shall ensure that the Common Exhaust Stack (service both the Package and Existing Boilers), and the Courtenay Bay Unit #2 Exhaust Stack are equipped with a continuous emission monitor. The monitor shall be capable of providing continuous readings of the opacity levels of the exhaust gas in the stack. The monitor shall be located, maintained, and operated in a manner and on a schedule that is acceptable to the Department.
32. The Approval Holder may be required to conduct a Mill Complex Emission Source Screening Study at a time established in writing by the Minister. The study shall provide, as a result of routine on-site activities alone, an estimate of the applicable averaging period maximum ground level concentrations (match the maximum concentration averaging period with the averaging periods in Schedule B) with frequency analysis at discrete receptor locations outside the boundaries of the Facility for each air contaminant being emitted from the Mill Complex. The sources and air contaminants to be considered in the study are those provided in the Mill Complex Emission Source definition in this Approval, and the attached Schedule B document respectively. As a minimum the study will include:
- a. Mill Complex Emission Source Characterisation – which shall include for all identified sources a determination of: the stack and/or vent heights above adjacent ground level, the stack and/or vent diameters, the stack and/or vent gas exit velocities, the stack and/or vent gas temperatures, and the estimated or measured mass emission rate of the source air contaminants. Measured emission rates shall be used where available. Where measured emission rates are not available, the emission rates are to be estimated using recognized emission factor equations; and
 - b. Air Quality Dispersion Modeling Study – which shall use a multisource model that is acceptable to the Department and sensitive to the terrain and building downwash effects. As a minimum, the model shall include inputs of the local topography, five years of hourly meteorological data from the nearest weather station, the results of the Mill Complex Emission Source Characterisation component of the study, and discrete receptor locations within a five kilometre radius of the Facility.

REPORTING

33. Prior to December 31, 2003, the Approval Holder shall submit to the Department in writing a Future Steam Supply and Emission Reduction Plan that identifies future steam supply scenarios that have emission reductions relative to the 2001 emission levels being released from the use of the Courtenay Bay Generating Station Unit #2 and the Irving Paper Steam Plant.
34. By September 30 of each year, the Approval Holder shall ensure that a Pre-test Plan pertaining to the source testing event, as required in item 29 under the Terms and Conditions section of this Approval, is completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing and filed with the Department for review.
35. By December 31 of each year, the Approval Holder shall ensure that a Final Report on the source testing as required in item 29 under the Terms and Conditions section of this Approval, is completed in accordance with the requirements embodied in the Department's Code of Practice for Source Testing and filed with the Department for review.
36. By the end of each month, the Approval Holder shall submit to the Approvals Branch in Fredericton and the Region 4 (Saint John) Office, a Monthly Air Quality Report for the previous month. The report can be submitted either by e-mail, fax or mail provided that the submitted copies are signed. The report shall contain the following information:
 - a. copies of any reports related to the Emergency Response section of this Approval;
 - b. a summary of any operating problems related to the opacity monitors;
 - c. a summary of any complaint received from the public regarding Fugitive Particulate Matter, Odour and Noise emissions;
 - d. a Fuel Consumption Inventory report for the Package Boiler, Existing Boiler, and the Courtenay Bay Generating Station Unit#2 Boiler. The report shall include, as a minimum, the amount of each type of fuel burned and percentage of sulphur content of each type, where applicable;
 - e. an estimate of the monthly emissions of Sulphur Dioxide, Particulate Matter, Nitrogen Oxide, Carbon Monoxide and Carbon Dioxide in tonnes from the Common Exhaust Stack, and the Courtenay Bay Generating Station Unit#2 Exhaust Stack. The estimates are to be determined using the information in the Fuel Consumption Inventory report and the most current applicable AP-42 Emission Factor equations or equivalent; and
 - f. an estimate of the monthly emissions of Acetaldehyde, Acetone, Formaldehyde, Methanol, Methyl Ethyl Ketone, and Toluene in kilograms from the TMP Pulping Vents (that include the Chip Washing and Steaming Vents, Pulping Vents, Steam/Heat Recovery Vents, and Pulp Dryer Vents) and Paper Machine Dryer Vents. The estimates are to be determined using the most current AP-42 Emission Factor equations or equivalent.
37. By February 15 of each year, the Approval Holder shall submit to the Approvals Branch in Fredericton and the Region 4 (Saint John) Office, an Annual Air Quality Report for the previous

year. The report can be submitted either by e-mail, fax or mail provided that the submitted copies are signed. The report shall contain the following information:

- a. copies of any reports related to the Emergency Response section of this Approval;
- b. a summary of any operating problems related to the opacity monitors;
- c. a summary of any complaints from the public regarding Fugitive Particulate Matter, Odour, and Noise emissions;
- d. a Fuel Consumption Inventory report for the Package Boiler, Existing Boiler, and the Courtenay Bay Generating Station Unit#2 Boiler. The report shall include, as a minimum, the amount of each type of fuel burned and percentage of sulphur content of each type, where applicable;
- e. an estimate of the annual emissions of Sulphur Dioxide, Particulate Matter, Nitrogen Oxide, Carbon Monoxide and Carbon Dioxide in tonnes from the Common Exhaust Stack, and the Courtenay Bay Generating Station Unit#2 Exhaust Stack. The estimates are to be determined using the information in the Fuel Consumption Inventory report and the most current applicable AP-42 Emission Factor equations or equivalent; and
- f. an estimate of the annual emissions of Acetaldehyde, Acetone, Formaldehyde, Methanol, Methyl Ethyl Ketone, and Toluene in kilograms from the TMP Pulping Vents (that include the Chip Washing and Steaming Vents, Pulping Vents, Steam/Heat Recovery Vents, and Pulp Dryer Vents) and Paper Machine Dryer Vents. The estimates are to be determined using the most current AP-42 Emission Factor equations or equivalent.

Prepared by: _____

Mike Cormier, P.Eng.
Industrial Approvals Engineer, Approvals Branch

Reviewed by: _____

Perry Haines, P.Eng.
Director, Approvals Branch

SCHEDULE "B"

AIR CONTAMINANTS - IRVING PULP AND PAPER LTD. - BAYSIDE DRIVE MILL

MAXIMUM GROUND LEVEL CONCENTRATION LIMITS (all 24-hour averages unless otherwise specified)

Air Contaminant	Maximum Ground Level Concentration (ug/m3)*	Limiting Effect	Mill Complex Emission Sources

*Acetaldehyde	500	Health	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Acetone	48000	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Antimony	25	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Arsenic	0.3	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Barium	10	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
Benzene	-	-	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Beryllium	0.01	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Cadmium	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Carbon Monoxide	15000 (8-hour average)	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2

			Exhaust Stack
*Chromium (di, tri, hexavalent)	1.5	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Cobalt	0.1	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Copper	50	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Ethylbenzene	1000	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Fluorides	0.86	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Formaldehyde	65	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents- Pulp Dryer Vents - Paper Machine Dryer Vents - Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Lead	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Methanol	4000	Health	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents

			- Pulp Dryer Vents - Paper Machine Dryer Vents
*Methyl Ethyl Ketone	1000	Health	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents - Pulp Dryer Vents - Paper Machine Dryer Vents
*Mercury	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Molybdenum	120	Particulate	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Naphthalene	22.5	Health, Odour	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Nickel	2	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Nitrogen Oxides	200	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Particulate Matter	120	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles - Site Access Roads
Particulate Matter < 10 microns in aerodynamic diameter.	-	-	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles

			- Site Access Roads
Particulate Matter < 2.5 microns in aerodynamic diameter.	-	-	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack - Woodchip Storage Piles - Site Access Roads
*Selenium	10	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
+Sulphur dioxide	150	Vegetation	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Toluene	2000	Odour	- Aerated Stabilization Basin (ASB) - Chip Washing and Steaming Vents - Heat Recovery Vents - Pulping Vents- Pulp Dryer Vents - Paper Machine Dryer Vents - Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Vanadium	2	Health	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack
*Zinc	120	Particulate	- Common Exhaust Stack (services both Package and Existing Boilers) - Courtenay Bay Generating Station Unit #2 Exhaust Stack

*Summary of Point of Impingement Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AACQs), Standards Development Branch, Ontario Ministry of Environment, September 2001.

+New Brunswick Air Quality Regulation filed under the Clean Air Act of New Brunswick, Schedule B and Schedule C.

++ Summary of Point of Impingement Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AACQs), Standards Development Branch, Ontario Ministry of Environment, November 1999.

INTERIM SUMMARY OF ISSUES AND RESPONSES

Relating to the Class 1 Air Quality Operating Approval for Irving Pulp and Paper, Limited Irving Paper - Bayside Drive Mill

August, 2002



INTRODUCTION

As part of the Public Participation Process under the *Clean Air Act*, the Department of the Environment and Local Government is required to prepare, at the mid-way point of the public comment period, an "Interim Summary of Issues and Responses". This document fulfils that requirement and is now available on the Department's Internet Site or through any regional Environment office of the Department.

The Interim Summary of Issues and Responses, prepared by the Department's Project Management Team, summarizes the key issues identified by the public to date and, where possible, provides responses to those issues. In addition, a draft approval is available at this mid-way point of the public comment period.

Where applicable, the responses in the Interim Summary refer to conditions in the draft approval. In this way, the public has the opportunity to view the Department's recommended action by the approval holder to address various concerns through the approval itself. Other responses might outline how issues are, or can be addressed through other means, including administratively, by improving operating practices, or by using pollution prevention or pollution control techniques. There may also be responses that address issues which are not considered significant in terms of environmental protection or public health, but that are considered in the overall review of a facility's operational activities.

The public continues to have the opportunity to identify new issues, as well as to comment on the Interim Summary of Issues and Responses and the draft approval until October 28, 2002, the end of the public comment period.

Please note that the Department encourages anyone who wishes to make comments to provide these in writing so that there is a definitive record of the inquiries and issues being submitted under the Public Participation Process. While staff will endeavour to respond to telephone calls or other forms of inquiry, written comments are encouraged so as to avoid the omission or misinterpretation of the information submitted by the public.

ABOUT THE FACILITY

Irving Pulp and Paper, Limited operates a Mill on Bayside Drive in the City of Saint John, New Brunswick, known as Irving Paper. The Mill was initially commissioned in 1954 and was called the *Rothsney Paper Corporation*. In 1981, the Irving Group purchased the Mill and called it Irving Paper.

The Mill utilizes the Thermal Mechanical Pulping (TMP) process to produce approximately 1000 tonnes per day of pulp from 100 % softwood. From a mixture of TMP pulp, bleached kraft pulp received primarily from the Reversing Falls Kraft Pulp Mill and clay fillers, Irving Paper produces approximately 1100 tonnes per day of paper comprised of standard newsprint, directory, and specialty grades for flyers and magazines. In 1991, the Mill underwent an expansion that resulted in Irving Paper having the largest TMP process line in North America. In 1998, the mill upgraded its TMP screening system and the No. 2 Paper Machine to produce a higher specialty grade paper.

In October 2002, Irving Paper will assume operational responsibility of the Unit # 2 at the Courtenay Bay Thermal Generating Station (CBTGS). Currently Unit # 2, which has been supplying steam to Irving Paper since 1971, is owned and operated by the New Brunswick Power Corporation. In order for Irving Paper to assume operational responsibility of Unit # 2, an amendment to the current Air Quality Approval to Operate is required to include Unit # 2 as a source and subsequent increase in the emission limits for the Facility.

As required under the *Air Quality Regulation* filed under the *Clean Air Act*, the facility operated by Irving Paper is considered a source of pollution and therefore must apply for and obtain an Air Quality Approval to Operate from the Department of the Environment and Local Government. The facility is required to conduct its operations according to conditions outlined in the issued Air Quality Approval aimed at preventing unfavourable air quality conditions. The conditions are generally wide-ranging and may include such requirements as:

- limitations on operational parameters;
- requirements for testing and monitoring emissions from specific unit operations;
- requirements for testing and monitoring the ambient air quality around the facility;
- requirements to operate air pollution control equipment;
- limits on emissions that are approved to be released to the atmosphere;
- provisions for equipment upgrade or maintenance;
- requirements for environmental emergency or compliance reporting; and
- other conditions aimed at minimizing the facility's impact on the environment.

The *Air Quality Regulation* provides for approvals to be issued by the Minister of the Environment and Local Government for a specified period, not to exceed five years.

For more detailed information on the Irving Paper facility, please refer to the Facility Profile, available on the Department's Public Information Access Internet Site or through any regional office of the Department. Information is also available by contacting Irving Paper directly. The contact information and Internet site address are given at the end of the Interim Summary.

GENERAL INFORMATION ABOUT THE INTERIM SUMMARY

While the mid-way point of the public comment period is September 12, 2002, this Interim Summary only includes comments received up to August 29, 2002. This provides sufficient time for the Department to consider the issues raised, formulate responses, as well as to publish the information in both official languages. Comments received after August 29, 2002 will be included in the "Final Summary of Issues and Responses" which will be available on November 12, 2002, following the public comment period that ends on October 28, 2002.

It is important to note that while the Interim Summary reflects all relevant public comments received by the Department of the Environment and Local Government, the names of specific individuals or groups who commented are not identified.

Any comments received or issues raised that are not directly related to air quality issues regarding this facility will not be included in the Interim Summary of Issues and Responses. These types of inquiries or comments will be forwarded directly to the appropriate staff of this Department, or other agencies as applicable.

SUMMARY OF COMMENTS RECEIVED AND RESPONSES PROVIDED

As of August 29, 2002, the Department has received the following comments from the public regarding the Irving Pulp and Paper, Limited facility or its current Air Quality Approval to Operate.

ISSUE #1: Courtenay Bay Generating Station Air Quality Approval

Could the Department review the Courtenay Bay Generating Station current Air Quality Approval with focus on review of emission caps?

RESPONSE:

The current Air Quality Approval to Operate issued to the Courtenay Bay Generating Station (CBGS) was issued on August 1, 2001 to the New Brunswick Power Commission for the operation of the Unit #2 and the Unit #4 systems at CBGS. In this Approval the Sulphur Dioxide emission cap was set at 5000 tonnes per year until January 1, 2003 at which time the Sulphur Dioxide emission cap would be reduced to 2000 tonnes per year. The reduction in cap was as a result of the forecasted discontinuance of use of CBGS Unit #2.

Since approximately 1971 Unit #2 has been supplying steam to Irving Paper. However, because of the proposed Bayside Power Co-generation project in which Irving Paper was named as the possible steam host, steam from CBTGS Unit #2 was thought not to be needed and this provided the premise for the emission cap reduction in the CBTGS Air Quality Approval to Operate. As known today, Irving Paper and Bayside Power never reached a steam deal and as a result Irving Paper requires the current steam generation from CBTGS Unit #2 to continue to be provided in order to operate their facility.

ISSUE #2: New Operating Arrangement for Irving Paper - Emissions

With the new arrangement of Irving Paper taking over operational responsibility of CBTGS Unit #2 what is the expected percent increase in sulphur dioxide, particulate matter, and nitrogen oxides, and metals if amendment gets approved?

RESPONSE:

With the new operating arrangement of Irving Paper taking over operational responsibility of CBTGS Unit #2 there will not be an increase in emissions of Sulphur Dioxide, Particulate Matter, and Nitrogen Oxides, and Metals being released from the combined operation of the CBTGS Unit #2 and the Irving Paper boilers. Based on the numbers being proposed by Irving Paper, and presented in the Facility Profile, they are forecasting an emission reduction from past and current emission levels.

ISSUE #3: Future of Courtenay Bay Generating Station Unit #2

If Irving Paper had not proceeded with this application and were able to meet their steam needs with natural gas, would it be accurate to conclude that CBTGS Unit #2 would be shut down?

RESPONSE:

In the opinion of the Department, we would conclude that CBTGS Unit #2 would have been shut down if Irving Paper did not require the steam for the operation of their mill. However, this is a question better answered by the New Brunswick Power Corporation.

ISSUE #4: Increase in Emission Limit - Irving Paper

The Facility profile suggests that including Unit #2 from the CBTGS as a source for Irving Paper will require a subsequent increase in the emission limits for the Facility. That being acknowledged how can the applicant be making public claims that there will be a likely decrease in emissions?

RESPONSE:

The emission limit for the CBTGS Unit #2 is currently included under the present CBTGS Air Quality Approval to Operate. With Irving Paper proposing to take over the operational responsibility of Unit #2 the proportion of the emission limit associated with this unit will need to be included under the Irving Paper Air Quality Approval to Operate which will result in a subsequent emission limit increase for Irving Paper.

The claims that there will be an emission decrease is based on the combined operation of the CBTGS Unit #2 and the Irving Paper boilers and comparing the current emissions levels with those being proposed from both the CBTGS Unit#2 and the Irving Paper boilers.

ISSUE #5: Emissions - Courtenay Bay Generating Station Unit#2

What are the emission levels for the Courtenay Bay Generating Station Unit #2?

RESPONSE:

The table that follows provides the Sulphur Dioxide, Nitrogen Oxides and Particulate Matter emission level estimates released by the New Brunswick Power Corporation, CBTGS Unit #2 Exhaust Stack for the years 2000 and 2001 and what Irving Paper is forecasting for future operation of Unit #2. Note: All emission estimates are based on using AP-42 Emission Factor Equations.

**Courtenay Bay Thermal Generating Station (CBTGS) Unit #2 Exhaust Stack
Emission Estimates (tonnes per year)**

Parameter	Year: 2000	Year: 2001	Forecasted
Sulphur Dioxide (SO ₂)	2154	1984	1820
Nitrogen Oxides (NO _x)	307	292	250
Particulate Matter (PM)	159	147	134

ISSUE #6: Emissions - Irving Paper Steam Plant

What are the emission levels from the Irving Paper Steam Plant before and after use of natural gas at the Steam Plant?

RESPONSE:

The table that follows provides the Sulphur Dioxide, Nitrogen Oxides and Particulate Matter emission level estimates released by the Irving Paper Steam Plant Exhaust Stack for the years 2000 (prior to natural gas) and 2001 (after natural gas) and what Irving Paper is forecasting for the future operation. Note: All emission estimates are based on using AP-42 Emission Factor Equations.

**Irving Paper Steam Plant Exhaust Stack
Emission Estimates (tonnes per year)**

Parameter	Year: 2000 (before natural gas)	Year: 2001 (after natural gas)	Forecasted
Sulphur Dioxide (SO ₂)	846	475	239
Nitrogen Oxides (NO _x)	200	134	126
Particulate Matter (PM)	63	40	22

ISSUE #6: Adverse Health Impacts

Does the applicant and the Minister recognise that the airshed that receives the emissions from the CBTGS Unit #2 Exhaust Stack settle where thousands of residents live including high-risk members of the public and if the amendment is approved will cause adverse health impacts?

RESPONSE:

The Minister does understand that some combustion gas emissions being released from the CBTGS sources do settle at various locations at ground level in the community surrounding the Facility. However, based on the

information provided to the Department on the emission levels being released from the CBTGS Unit #2 Exhaust Stack it has been demonstrated that the emission levels are within our accepted standards and should not be causing an acute localized air quality impact at their current emission levels.

ISSUE #7: Medical Research

Does the Minister accept the established medical research, which substantiates links and adverse health impacts associated with the pollutants of Sulphur Dioxide and Particulate Matter?

RESPONSE:

The Minister, along with the other Ministers in Canada ie. Canadian Council Ministers of the Environment (CCME), do accept the research that has been presented on the associated adverse health impacts with particulate matter, specifically fine particulate matter.

CONTACT INFORMATION

For information on the Clean Air Act, the Public Participation Process, the Facility Profile of the Irving Paper plant, the Interim Summary of Issues and Responses, and the draft Approval, visit the Department's website at:

<http://www.gnb.ca/elg-egl/0355/0005/index.htm>

For information on the operation of the Irving Paper Bayside Drive Mill, please contact:

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For information about the Public Participation Process, or to relay questions or comments about the Department's web site, please contact:

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**FINAL SUMMARY
OF ISSUES AND RESPONSES**

**Relating to the Class 1 Air Quality Operating Approval
for Irving Pulp and Paper, Limited
Bayside Drive Mill
November 2002**



INTRODUCTION

As part of the Public Participation Process under the Clean Air Act, the Department of the Environment and Local Government is required to prepare a "Final Summary of Issues and Responses" of all the issues raised by the public during the public review process. This document marks the 150th day of the 180-day public participation process and is available on the Department's Internet Site or through any regional Environment office.

The Department's Project Management Team is responsible for summarizing the comments (including questions) made to the Department by the public to date and for providing, where possible, responses to those comments. In addition to this Final Summary Report of Issues and Responses, the Interim Summary Report of Issues and Responses, the draft approval made available in September 2002, and the intended approval are also available to the public.

Where applicable, the responses in the Final Summary refer to conditions in the intended approval. In this way, the public has the opportunity to view the Department's recommended action by the approval holder to address various concerns through the approval itself. Other responses would outline how issues are, or can be addressed through other means, including administratively, by improving operating practices, or by using pollution prevention or pollution control techniques. There may also be responses that address issues which may not be significant in terms of environmental protection or public health, but that are considered in the overall review of a facility's operational activities.

ABOUT THE FACILITY

Irving Pulp and Paper, Limited operates a Mill on Bayside Drive in the City of Saint John, New Brunswick, known as Irving Paper. The Mill was initially commissioned in 1964 and was called the Rothesay Paper Corporation. In 1981, the Irving Group purchased the Mill and called it Irving Paper.

The Mill utilizes the Thermal Mechanical Pulping (TMP) process to produce approximately 1000 tonnes

per day of pulp from 100 % softwood. From a mixture of TMP pulp, bleached kraft pulp received primarily from the Reversing Falls Kraft Pulp Mill and clay fillers, Irving Paper produces approximately 1100 tonnes per day of paper comprised of standard newsprint, directory, and specialty grades for flyers and magazines. In 1991, the Mill underwent an expansion that resulted in Irving Paper having the largest TMP process line in North America. In 1999, the mill upgraded its TMP screening system and the No. 2 Paper Machine to produce a higher specialty grade paper.

In January, 2003, Irving Paper will assume operational responsibility of the Unit # 2 at the Courtenay Bay Thermal Generating Station (CBTGS). Currently Unit # 2, which has been supplying steam to Irving Paper since 1971, is owned and operated by the New Brunswick Power Corporation. In order for Irving Paper to assume operational responsibility of Unit # 2, an amendment to the current Air Quality Approval to Operate is required to include Unit # 2 as a source and subsequent increase in the emission limits for the Facility.

As required under the Air Quality Regulation – Clean Air Act, the Bayside Drive Mill Complex operated by Irving Pulp and Paper, Limited is considered a source, and therefore must apply for and obtain an Air Quality Approval to Operate from the Department. The facility is required to conduct its operations according to conditions outlined in the Air Quality Approval aimed at preventing unfavorable air quality conditions. The conditions are generally wide-ranging and may include such requirements as:

- limitations on operational parameters;
- requirements for testing and monitoring emissions from specific unit operations;
- requirements for testing and monitoring the ambient air quality surrounding the facility;
- requirements to operate air pollution control equipment;
- limits on emissions that are approved to be released to the atmosphere;
- provisions for equipment upgrade and/or maintenance;
- requirements for environmental emergency and/or compliance reporting; and
- other conditions aimed at minimizing the facility's impact on the environment. The Regulation provides for approvals to be issued by the Minister of the Environment and Local Government for a specified period, not to exceed five years.

For more detailed information on the Irving Pulp and Paper, Limited facility, please see the Facility Profile, available on the Department's Public Information Access Internet Site or through any office of the Department. Information is also available by contacting Irving Paper directly. (The contact information and Internet site address appear at the end of this Summary)

GENERAL INFORMATION ABOUT THE SUMMARY

This summary includes comments received from the public comment period that ran from June 28, 2002 to November 12, 2002. It is important to note that while the Final Summary reflects all relevant public comment received by the Department of the Environment and Local Government, the names of specific individuals or groups who commented are not identified.

Any comments received or issues raised that are not directly related to air quality issues regarding this facility will not be included in the summary of issues and responses. These types of inquiries or comments will be forwarded directly to the appropriate staff of this Department, or other agencies as applicable.

SUMMARY OF COMMENTS RECEIVED AND RESPONSES PROVIDED

As of November 13, 2002, the Department had received the following comments from the public regarding the Irving Pulp and Paper, Limited facility or its current Air Quality Approval to Operate:

ISSUE #1: Courtenay Bay Thermal Generating Station Air Quality Approval

Could the Department review the Courtenay Bay Thermal Generating Station current Air Quality Approval with a focus on the review of emission caps?

The current Air Quality Approval to Operate issued to the Courtenay Bay Thermal Generating Station (CBTGS) was issued on August 1, 2001 to the New Brunswick Power Commission for the operation of the Unit #2 and the Unit #4 systems at CBTGS. In this Approval the Sulphur Dioxide emission cap was set at 5000 tonnes per year until January 1, 2003, at which time the Sulphur Dioxide emission cap would be reduced to 2000 tonnes per year.

The reduction in the cap was as a result of the forecasted discontinuance of use of CBTGS Unit #2 because of the proposed Bayside Power Co-generation project. In this project Irving Paper was named as the possible steam host. Therefore, steam from CBTGS Unit#2 that had been supplied to Irving Paper since approximately 1971, was thought not to be needed, and this provided the premise for the emission cap reduction in the CBTGS Air Quality Approval to Operate. As known today, Irving Paper and Bayside Power never reached a steam deal and as a result Irving Paper requires the current steam generation from CBTGS Unit #2 to continue to be provided in order to operate their facility.

ISSUE #2: Future of Courtenay Bay Thermal Generating Station Unit #2

If Irving Paper had not proceeded with this application and were able to meet their steam needs with natural gas, would it be accurate to conclude that CBTGS Unit #2 would be shut down? Is the Minister satisfied that the CBTGS Unit #2 is in good enough condition to operate for another five years?

RESPONSE:

In the opinion of the Department, we would conclude that CBTGS Unit #2 would have been shut down if Irving Paper did not require the steam for the operation of their mill. However, this is a question better answered by the New Brunswick Power Corporation.

The inspection and licensing of the operating condition of combustion units does not fall under the jurisdiction of the Department of the Environment and Local Government. This responsibility is under

the Department of Public Safety. Our Department focuses on limiting the air contaminant emissions being released from the combustion unit. In the case of CBTGS Unit #2, the Department has assigned new emission limits that are approximately 30 percent lower than the present limits for the year 2003 and approximately 45 percent lower than the present limits for the year 2004 and 2005 that are to be met by Irving Paper during the operation of the CBTGS Unit #2 over the next three years and we anticipate full compliance with these limits.

ISSUE #3: Plan for Steam Supply in the Future

Can the Approval require Irving Paper to present to the Department a Plan for Steam Supply after the intended five-year use of the CBTGS Unit #2?

RESPONSE:

The recommended Intended Approval for issuance will include a condition that requires Irving Paper to submit a Future Steam Supply and Emission Reduction Plan after the intended three-year approved use of the CBTGS Unit #2. The plan is required to be submitted within one year, two years before expiry of the Approval.

ISSUE #4: Increase in Emission Limit – Irving Paper

The Facility profile suggests that including Unit #2 from the CBTGS as a source for Irving Paper will require a subsequent increase in the emission limits for the Facility. That being acknowledged how can the applicant be making public claims that there will be a likely decrease in emissions?

RESPONSE:

The emission cap for Sulphur Dioxide for the CBTGS Unit #2 is currently included under the present CBTGS Air Quality Approval to Operate, and makes up 3000 tonnes per year of the total 5000 tonnes per year cap for the Facility. With Irving Paper proposing to take over the operational responsibility of Unit #2, the proportion of the emission cap associated with this unit will need to be included under the Irving Paper Air Quality Approval to Operate. Currently the Irving Paper Sulphur Dioxide emission cap is set at 700 tonnes per year, including the emission cap portion that makes up the CBTGS Unit#2 into the Irving Paper Air Quality Approval will result in a subsequent new emission cap of 3700 tonnes per year. The recommended Intended Approval for issuance is authorizing 2500 tonnes per year, which is a 30 % reduction from current emission caps.

The claims that there will be an emission decrease is based on the combined operation of the CBTGS Unit #2 and the Irving Paper boilers and comparing the current reported emissions levels with those being proposed by Irving Paper for both the CBTGS Unit#2 and the Irving Paper boilers. The forecasted emission decreases for each source is illustrated in the responses to Issues #5 and #6.

ISSUE #5: Emissions – Courtenay Bay Thermal Generating Station Unit#2

What are the emission levels for the Courtenay Bay Thermal Generating Station Unit #2?

RESPONSE:

The table that follows provides the Sulphur Dioxide, Nitrogen Oxides and Particulate Matter emission level estimates released by the New Brunswick Power Corporation, CBTGS Unit #2 Exhaust Stack for the years 2000 and 2001 and what Irving Paper is forecasting for future operation of Unit #2. Note: All emission estimates are based on using AP-42 Emission Factor Equations.

**Courtenay Bay Thermal Generating Station (CBTGS) Unit #2 Exhaust Stack
Emission Estimates (tonnes per year)**

Parameter	Year: 2000	Year: 2001	Forecasted
Sulphur Dioxide (SO ₂)	2154	1984	1820
Nitrogen Oxides (NO _x)	307	292	250
Particulate Matter (PM)	159	147	134

ISSUE #6: Emissions – Irving Paper Steam Plant

What are the emission levels from the Irving Paper Steam Plant before and after use of natural gas at the Steam Plant?

RESPONSE:

The table that follows provides the Sulphur Dioxide, Nitrogen Oxides and Particulate Matter emission level estimates released by the Irving Paper Steam Plant Exhaust Stack for the years 2000 (prior to natural gas) and 2001 (after natural gas) and what Irving Paper is forecasting for the future operation. Note: All emission estimates are based on using AP-42 Emission Factor Equations.

**Irving Paper Steam Plant Exhaust Stack
Emission Estimates (tonnes per year)**

Parameter	Year: 2000 (before natural gas)	Year: 2001 (after natural gas)	Forecasted
Sulphur Dioxide (SO ₂)	846	475	239
Nitrogen Oxides (NO _x)	200	134	126
Particulate Matter (PM)	63	40	22

ISSUE #7: Airshed – Adverse Health Impacts

What is the "airshed" for Irving Paper? Does the applicant and the Minister recognize that the airshed that receives the emissions from the CBTGS Unit #2 Exhaust Stack settle where thousands of residents live including high-risk members of the public and if the amendment is approved will cause adverse health impacts? Will there be a decrease in emissions in the airshed as Irving Paper suggests?

RESPONSE:

The airshed for Irving Paper Facility (which includes the CBTGS Unit #2 Exhaust Stack) is considered to be the areas surrounding the Facility that have air contaminants, originating from the Irving Paper Facility, impinging at ground level.

The Minister does understand that some combustion gas emissions being released from the CBTGS sources do settle at various locations at ground level in the community surrounding the Facility. However, based on the information provided to the Department on the emission levels being released from the CBTGS Unit #2 Exhaust Stack it has been demonstrated that the emission levels are within our accepted standards and should not be causing an acute localized air quality impact at their current emission levels.

Based on the proposed decreases in emission levels from Irving Paper and the reduction of emission limits authorized in the recommended Intended Approval for issuance there will be a decrease in emissions to the airshed compared to previous years.

ISSUE #8: Medical Research - Fine Particulate Matter

Does the Minister accept the established medical research, which substantiates links and adverse health impacts associated with the pollutants of Sulphur Dioxide and Particulate Matter? Can the Minister provide an understanding of the amount of fine particulate matter that is released from the Irving Paper Steam Plant and the Courtenay Bay Thermal Generating Station Unit #2 Exhaust Stacks?

RESPONSE:

The Minister, along with the other Ministers in Canada ie. Canadian Council Ministers of the Environment (CCME), does accept the research that has been presented on the associated adverse health impacts of particulate matter, specifically fine particulate matter.

Presently, the only information the Department has with regards to the particulate matter being released from the Facility is total particulate matter. There are conditions in the recommended Intended Approval for issuance that will require the Approval Holder to conduct Particulate Size Distribution studies on the sources that burn No. 6 Fuel Oil. The results of this study will provide more detailed information on the amount of fine particulate matter that is released from the Facility.

ISSUE #9: Trace Chemicals in the Water Vapour

What were the results of the Trace Chemicals in the Water Vapour study? What new requirements as a

result of the study have been introduced?

RESPONSE:

The trace chemicals in the water vapour study revealed that there are some sources at the mill that emit trace amounts of toluene, methyl ethyl ketone, methanol, formaldehyde, acetone, and acetaldehyde in the exhaust gas streams. In the recommended Intended Approval for issuance the mill will be required to conduct an emission inventory of these compounds and report on a monthly basis the monthly emission rate for each.

ISSUE #10: Grandview Avenue Co-generation Unit

Are there options that may be available to somehow get the Grandview Avenue Co-generation Unit legally included under the Irving Paper operation, maybe the legal name, definition of the Facility? If so, would this give the Minister the authority to require the electricity and steam needs in surplus at the Co-generation Unit to be provided to the Irving Paper operation and eliminate the use of the CBTGS Unit#2 to supply a percentage of their steam needs?

RESPONSE:

The legal name of the owner of the Facility is required to be the Approval Holder and the legal name is Irving Pulp and Paper, Limited. The definition of Facility would be incorrect if we included the Grandview Avenue Co-generation Unit, as this Facility will not be in the title of Irving Pulp and Paper, Limited. If the Grandview Avenue Co-generation Unit was owned and/or operated by Irving Pulp and Paper, Limited and was technically possible, it is probable that any surplus and steam and electricity needs would be utilized by the Irving Paper operation and lead to a possible elimination of the use of CBTGS Unit#2 by Irving Paper.

Also, there have been discussion with the Grandview Avenue Co-generation Unit project representatives and the Department that have indicated that there will be no surplus steam available for use at Irving Paper.

ISSUE #11: Addition of CBTGS Unit #2

Will this new addition of the CBTGS Unit#2 also include the main building, control room, stack and all other physical parts of what is known today as the CBTGS?

RESPONSE:

The equipment that makes up the CBTGS Unit #2 will be added to the recommended Intended Approval for issuance.

ISSUE #12: Greenhouse Gas Reduction Plans

Greenhouse Gases

What level of Greenhouse Gases does this Facility produce? What percentage of New Brunswick's Greenhouse Gases does this Facility represent? Will there be a condition in the Approval to compel this Facility to implement a plan to reduce its Greenhouse Gas Emissions?

RESPONSE:

At the present time, the level of Greenhouse Gases produced by most industrial facilities in New Brunswick is not fully quantified. As a result, the Department cannot provide a breakdown of the percentage this Facility would contribute to the total. However, in the Intended Approval conditions have been included that require the Approval Holder to conduct an emission inventory to estimate the monthly total, in tonnes, of Carbon Dioxide from the fuel combustion sources. This study will provide: a starting point to determine the level of Greenhouse Gases produced by the Mill; the percentage that the Mill contributes to New Brunswick's Greenhouse Gases Inventory; and a formulation of implementation plans to reduce Greenhouse Gases.

As a result of the Kyoto Protocol on greenhouse gas emission reductions, which focuses specifically on Carbon Dioxide, Methane and Ozone Depleting Substances, the federal and provincial governments are in the developmental phase of developing implementation plans to achieve such targets. The implementation plans will be specific to each jurisdiction to achieve the overall designated greenhouse gas reductions. As part of the Energy Policy recently released, the Government of New Brunswick is developing a discussion paper leading to a Climate Change Action Plan, which is expected to devise management strategies to reduce emissions of greenhouse gases. Therefore, it would be premature for this Department to require reductions at this time without knowing the specific implementation plans to meet the requirements of the Kyoto Protocol.

ISSUE #13: Crude Oil Courtenay Bay Thermal Generating Station Unit #2

Is Irving Paper proposing to use Crude Oil as a fuel for the CBTGS Unit #2?

RESPONSE:

The Irving Paper proposal is to use a refinement of Crude Oil referred to as No.6 Fuel Oil which is the same fuel that has been used since the Unit#2 first came into operation as early as 1971.

ISSUE #14: Receptor

What is meant by the word receptor?

RESPONSE:

Receptor is referred to as any person, location, and/or monitor upon which air contaminants may be impinging.

ISSUE #15: Mill Complex Emission Screening Study

What is the purpose of the Mill Complex Emission Screening Study? Why has the requirement for the Mill Complex Emission Screening Study been changed to not include a specific date for the Irving Paper Facility? Will the study include the emissions from the lagoon?

RESPONSE:

Presently, there is information that is known on the types and amount of air contaminants that are being emitted from large industrial facilities and what the ground level impact concentrations are at very specific locations from all sources that may contribute to those locations. However, there is no level of understanding on the potential ground level impacts that are associated with one facility during routine operation. The Emission Screening Study is a new requirement that is designed to provide this level of understanding.

The reason for not specifically requiring the study at a specified date in the Irving Paper Approval is the fact the new study requirements are under trial at another facility, and before the Department develops an implementation plan for applying the new requirements to large industrial sources in New Brunswick the Department wants to review the findings from the trial case and ensure that the study requirements are written properly to achieve the desired goal.

Yes, when the study is applied to the Irving Paper facility, this will include the Irving Paper Wastewater Treatment System.

ISSUE #16: AP-42 Emission Factor Equations

Can an explanation of the AP-42 Emission Factor Equations be provided, as used in one of the Interim Report responses?

RESPONSE:

AP-42 represents a document that is used by Approval Engineers throughout the world to assist in the estimating of emissions from a number of different industrial type sources that may be found in the Industrial Sector.

ISSUE #17: Emission Controls

We suggest that the Approval Holder be required to install emission control technologies to reduce the fine particulate matter being released from the Courtenay Bay Generating Station Unit #2 Exhaust Stack. What is the response to this suggestion?

RESPONSE:

There are terms and conditions in the Approval that require Irving Paper to conduct source testing to determine the level of fine particulate matter being released from the CBTGS Unit #2 Exhaust Stack. If in the opinion of the Department the levels determined to be emitted from the CBTGS Unit #2 are found to be elevated, the Department would require the implementation of emission controls to reduce and control the elevated levels.

ISSUE #18: Inspections

What is the Departmental Policy on unannounced inspections? Were any done during the current approval period on this industry? How many?

RESPONSE:

Presently, there is no official policy regarding unannounced inspections. There were no unannounced inspections conducted at this Facility.

ISSUE #19: Odour Emissions

Please list the number of complaints regarding odour emissions for the Mill Complex and Wastewater Treatment Lagoon. What is the level of odour emissions that triggers a smell to a person?

RESPONSE:

Within our Regional Office Occurrence System database there were no calls received from the public regarding odour emissions during the life of the existing in-force Approval.

The level of odour emissions that triggers a smell to a person varies as we all have a different sense of smell. However, in general, odour detection levels are significantly lower than levels that would be of health concern for most compounds.

ISSUE #20: Noise Emissions

What is the actual noise level that will trigger an adverse reaction to a person?

RESPONSE:

The level of noise emission that triggers an adverse reaction to a person varies as we all have a different sensitivity to noise. However, in general noise levels that are 10 decibels above background noise have been known to have an impact.

ISSUE #21: Portable Car Wash

Is there a permanent Car Wash Facility at the site to clean employee's vehicles covered with dust? Is the dust impacting off-site receptors?

RESPONSE:

Yes, there is a car wash (water only) outside the gate of the Facility that operates from May to October. It is intended for employee use, however the public is free to use it as well.

The car wash is to clean any fugitive dust that may impact on-site vehicles in the parking lot. The fugitive dust episodes have been found to be very localized and we are not aware of any impacts to off-site receptors.

MINISTER'S DECISION

The Minister has concluded that Irving Pulp and Paper, Limited will be issued a three year Approval to Operate, effective January 15, 2003. The new Approval with identification number I-3743, will replace the existing Approval I-2530 on that date.

CONTACT INFORMATION

For information on the Clean Air Act, the Public Participation Process, the Facility Profile of the Irving Pulp and Paper, Limited facility, the Summary Report of Issues and Responses, and the draft Approval visit the Department's website at: <http://www.gnb.ca/0009/0355/0005/0005-e.html>

For further information on the operation of the Irving Pulp and Paper, Limited facility please contact:

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